reduce the risk of recurrent infections. These include wiping from front to back after defaecation, not delaying urination, and not wearing occlusive underwear.

D-mannose, cranberry or urine alkalinising products may be used as self-care treatment strategies, however the benefit of these products for the prevention and treatment of UTIs has not been established. Patients should be advised to consider the sugar content of these products. (A)

Drug treatment

EvGr When prescribing antibacterial therapy the severity of symptoms, risk of developing complications, previous urine culture and susceptibility results, and previous antibacterial use should be taken into consideration.

With the exception of pregnant women, asymptomatic bacteriuria is not routinely treated with antibacterials. (A)

For other considerations such as for patients receiving prophylactic antibacterial therapy, switching from *intravenous* to *oral* antibacterials, and for advice to give to patients, see Antibacterials, principles of therapy p. 527.

EvGr Reassess patients if symptoms worsen at any time, or do not start to improve within 48 hours of starting treatment.

Refer patients to hospital if they have any symptoms or signs suggestive of a more serious illness or condition.

Review choice of antibacterial when microbiological results are available, and change treatment as appropriate if susceptibility results indicate bacterial resistance.

Advise patients that paracetamol or ibuprofen can be used for pain relief. Where appropriate codeine may be used in patients with acute pyelonephritis or prostatitis. (A)

Lower urinary-tract infection

Non-pregnant women

EvGr Consider a back-up antibacterial prescription for use if symptoms worsen or do not improve within 48 hours **or** an immediate antibacterial prescription. (A)

Choice of antibacterial therapy

- ***Oral*** *first line* :
  - EvGr Nitrofurantoin p. 625, or trimethoprim p. 607 (if low risk of resistance). (A)
- ***Oral*** *second line* (if no improvement after at least 48 hours, **or** first line not suitable):
  - EvGr Nitrofurantoin (if not used first line), fosfomycin p. 603, or pivmecillinam hydrochloride p. 585. (A)

Men

EvGr An immediate antibacterial prescription should be given and a midstream urine sample obtained before treatment is taken and sent for culture and susceptibility testing. (A)

Choice of antibacterial therapy

- ***Oral*** *first line* :
  - EvGr Nitrofurantoin, or trimethoprim. (A)
- ***Oral*** *second line* (if no improvement after at least 48 hours, **or** first line not suitable):
  - Consider pyelonephritis or prostatitis. See *pyelonephritis, acute*, or *prostatitis, acute* below for guidance.

Pregnant women

EvGr An immediate antibacterial prescription should be given and a midstream urine sample obtained before treatment is taken and sent for culture and susceptibility testing. (A)

Choice of antibacterial therapy

- ***Oral*** *first line* :
  - EvGr Nitrofurantoin. (A)
- ***Oral*** *second line* (if no improvement after at least 48 hours, **or** first line not suitable):
  - EvGr Amoxicillin p. 579 (only if culture susceptible), or cefalexin p. 551. (A)
- ***Alternative*** *second line* :
  - EvGr Consult local microbiologist. (A)
- ***Asymptomatic bacteriuria***:
  - EvGr Amoxicillin, cefalexin, or nitrofurantoin. (A)

Prostatitis, acute

EvGr An immediate antibacterial prescription should be given and a midstream urine sample obtained before treatment is taken and sent for culture and susceptibility testing.

Refer patients to hospital if symptoms are not improving after 48 hours of treatment, or if they have any signs or symptoms suggestive of a more serious condition such as sepsis, acute urinary retention, or prostatic abscess. (A)

Choice of antibacterial therapy

- ***Oral*** *first line* :
  - EvGr Ciprofloxacin p. 590, or ofloxacin p. 593.
  - Alternative first line (if unable to take fluoroquinolones): trimethoprim. (A)
- ***Oral*** *second line* (on specialist advice):
  - EvGr Levofloxacin p. 592, or co-trimoxazole p. 594. (A)
- ***Intravenous*** *first line* (if severely unwell or unable to take oral treatment). EvGr Antibacterials may be combined if concerned about sepsis.
  - Amikacin p. 544, ceftriaxone p. 556, cefuroxime p. 553, ciprofloxacin, gentamicin p. 545, or levofloxacin. (A)
- ***Intravenous*** *second line* :
  - EvGr Consult local microbiologist. (A)

Pyelonephritis, acute

EvGr An immediate antibacterial prescription should be given and a midstream urine sample obtained before treatment is taken and sent for culture and susceptibility testing.

Consider referring or seeking specialist advice for patients with acute pyelonephritis who are significantly dehydrated or are unable to take oral fluids and medicines, are pregnant, or have a higher risk of developing complications. (A)

Non-pregnant women and men

Choice of antibacterial therapy

- ***Oral*** *first line* :
  - EvGr Cefalexin p. 551, or ciprofloxacin p. 590. If sensitivity known: co-amoxiclav p. 582, or trimethoprim p. 607. (A)
- ***Intravenous*** *first line* (if severely unwell or unable to take oral treatment). EvGr Antibacterials may be combined if concerned about susceptibility or sepsis.
  - Amikacin p. 544, ceftriaxone p. 556, cefuroxime p. 553, ciprofloxacin, or gentamicin p. 545. Co-amoxiclav may be used if given in combination or sensitivity known. (A)
- ***Intravenous*** *second line* :
  - EvGr Consult local microbiologist. (A)

Pregnant women

Choice of antibacterial therapy

- ***Oral*** *first line* :
  - EvGr Cefalexin. (A)
- ***Intravenous*** *first line* (if severely unwell or unable to take oral treatment):
  - EvGr Cefuroxime. (A)
- *Second line* or combining antibacterials if concerned about susceptibility or sepsis:
  - EvGr Consult local microbiologist. (A)

Recurrent urinary-tract infection

EvGr For patients with recurrent UTIs, refer or seek specialist advice for men, pregnant women, patients with suspected cancer, those presenting with recurrent upper UTI, and those with recurrent lower UTI with an unknown cause.

For postmenopausal women experiencing recurrent UTIs, consider a vaginal oestrogen [unlicensed indication] at the lowest effective dose if behavioural and personal hygiene measures alone are not effective or appropriate. Treatment